

SEQ ID NO:1

gat atc cag atg acc cag act aca tcc tcc ctg tct gcc tct ctg gga 48
 Asp Ile Gln Met Thr Gln Thr Ser Ser Leu Ser Ala Ser Leu Gly
 5 1 5 10 15

gac aga gtc acc att agt tgc agg gca agt cag gac att agc aat tat 96
 Asp Arg Val Thr Ile Ser Cys Arg Ala Ser Gln Asp Ile Ser Asn Tyr
 20 25 30

10 tta aac tgg tat cag cag aaa cca gat gga act gtt aaa ctc ctg atc 144
 Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Lys Leu Leu Ile
 35 40 45

15 tac tac aca tca ata tta cac tca gga gtc cca tca agg ttc agt ggc 192
 Tyr Tyr Ser Ile Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

20 agt ggg tct gga aca gat tat tct ctc acc att agc aac ctg gag caa 240
 Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn Leu Glu Gln
 65 70 75 80

25 gaa gat ttt gcc act tac ttt tgc caa cag ggt aat acg ctt ccg tgg 288
 Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
 85 90 95

acg ttc ggt gga ggc acc aag ctg gaa atc aaa 321
 Thr Phe Gly Gly Thr Lys Leu Glu Ile Lys
 100 105

30

SEQ ID NO:2

Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser Ala Ser Leu Gly
 35 1 5 10 15

Asp Arg Val Thr Ile Ser Cys Arg Ala Ser Gln Asp Ile Ser Asn Tyr
 20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Lys Leu Leu Ile
 35 40 45

40 Tyr Tyr Thr Ser Ile Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn Leu Glu Gln
 65 70 75 80

Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
 85 90 95

45 Thr Phe Gly Gly Thr Lys Leu Glu Ile Lys
 100 105

50 SEQ ID NO:3

gaa gtg cag ctg gtg gag tct ggg gga ggc tta gtg aag cct gga ggg 48
 Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15

55 tcc ctg aaa ctc tcc tgt gca gcc tct gga ttc gct ttc agt atc tat 96
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr
 20 25 30

gac atg tct tgg gtt cgc cag act ccg gag aag agg ctg gag tgg gtc	144																																																																																																																													
Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val																																																																																																																														
35	40	45		5 gca tac att agt agt ggt ggt acc acc tac tat cca gac act gtg	192	Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50	55	60		10 aag ggc cga ttc acc atc tcc aga gac aat gcc aag aac acc ctg tac	240	Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65	70	75	80	15 ctg caa atg agc agt ctg aag tct gag gac aca gcc atg tat tac tgt	288	Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85	90	95		20 gca aga cat agt ggc tac ggt agt agc tac ggg gtt ttg ttt gct tac	336	Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100	105	110		25 tgg ggc caa ggg act ctg gtc act gtc tct gca	369	Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115	120		30 Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		45 SEQ ID NO:4		Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		50 SEQ ID NO:5		Lys Asp Glu Leu		1		55 SEQ ID NO:6		Arg Glu Asp Leu		1		60 SEQ ID NO:7		Gln Asp Ile His Gly Tyr		1 5	
45																																																																																																																														
5 gca tac att agt agt ggt ggt acc acc tac tat cca gac act gtg	192																																																																																																																													
Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val																																																																																																																														
50	55	60		10 aag ggc cga ttc acc atc tcc aga gac aat gcc aag aac acc ctg tac	240	Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65	70	75	80	15 ctg caa atg agc agt ctg aag tct gag gac aca gcc atg tat tac tgt	288	Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85	90	95		20 gca aga cat agt ggc tac ggt agt agc tac ggg gtt ttg ttt gct tac	336	Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100	105	110		25 tgg ggc caa ggg act ctg gtc act gtc tct gca	369	Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115	120		30 Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		45 SEQ ID NO:4		Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		50 SEQ ID NO:5		Lys Asp Glu Leu		1		55 SEQ ID NO:6		Arg Glu Asp Leu		1		60 SEQ ID NO:7		Gln Asp Ile His Gly Tyr		1 5									
60																																																																																																																														
10 aag ggc cga ttc acc atc tcc aga gac aat gcc aag aac acc ctg tac	240																																																																																																																													
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr																																																																																																																														
65	70	75	80	15 ctg caa atg agc agt ctg aag tct gag gac aca gcc atg tat tac tgt	288	Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85	90	95		20 gca aga cat agt ggc tac ggt agt agc tac ggg gtt ttg ttt gct tac	336	Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100	105	110		25 tgg ggc caa ggg act ctg gtc act gtc tct gca	369	Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115	120		30 Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		45 SEQ ID NO:4		Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		50 SEQ ID NO:5		Lys Asp Glu Leu		1		55 SEQ ID NO:6		Arg Glu Asp Leu		1		60 SEQ ID NO:7		Gln Asp Ile His Gly Tyr		1 5																	
75	80																																																																																																																													
15 ctg caa atg agc agt ctg aag tct gag gac aca gcc atg tat tac tgt	288																																																																																																																													
Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys																																																																																																																														
85	90	95		20 gca aga cat agt ggc tac ggt agt agc tac ggg gtt ttg ttt gct tac	336	Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100	105	110		25 tgg ggc caa ggg act ctg gtc act gtc tct gca	369	Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115	120		30 Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		45 SEQ ID NO:4		Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		50 SEQ ID NO:5		Lys Asp Glu Leu		1		55 SEQ ID NO:6		Arg Glu Asp Leu		1		60 SEQ ID NO:7		Gln Asp Ile His Gly Tyr		1 5																									
95																																																																																																																														
20 gca aga cat agt ggc tac ggt agt agc tac ggg gtt ttg ttt gct tac	336																																																																																																																													
Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr																																																																																																																														
100	105	110		25 tgg ggc caa ggg act ctg gtc act gtc tct gca	369	Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115	120		30 Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		45 SEQ ID NO:4		Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly		1 5 10 15		Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr		20 25 30		Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val		35 40 45		Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val		50 55 60		Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr		65 70 75 80		Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys		85 90 95		40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr		100 105 110		Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala		115 120		50 SEQ ID NO:5		Lys Asp Glu Leu		1		55 SEQ ID NO:6		Arg Glu Asp Leu		1		60 SEQ ID NO:7		Gln Asp Ile His Gly Tyr		1 5																																	
110																																																																																																																														
25 tgg ggc caa ggg act ctg gtc act gtc tct gca	369																																																																																																																													
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala																																																																																																																														
115	120																																																																																																																													
30 Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly																																																																																																																														
1 5 10 15																																																																																																																														
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr																																																																																																																														
20 25 30																																																																																																																														
Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val																																																																																																																														
35 40 45																																																																																																																														
Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val																																																																																																																														
50 55 60																																																																																																																														
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr																																																																																																																														
65 70 75 80																																																																																																																														
Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys																																																																																																																														
85 90 95																																																																																																																														
40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr																																																																																																																														
100 105 110																																																																																																																														
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala																																																																																																																														
115 120																																																																																																																														
45 SEQ ID NO:4																																																																																																																														
Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly																																																																																																																														
1 5 10 15																																																																																																																														
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr																																																																																																																														
20 25 30																																																																																																																														
Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val																																																																																																																														
35 40 45																																																																																																																														
Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val																																																																																																																														
50 55 60																																																																																																																														
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr																																																																																																																														
65 70 75 80																																																																																																																														
Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys																																																																																																																														
85 90 95																																																																																																																														
40 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr																																																																																																																														
100 105 110																																																																																																																														
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala																																																																																																																														
115 120																																																																																																																														
50 SEQ ID NO:5																																																																																																																														
Lys Asp Glu Leu																																																																																																																														
1																																																																																																																														
55 SEQ ID NO:6																																																																																																																														
Arg Glu Asp Leu																																																																																																																														
1																																																																																																																														
60 SEQ ID NO:7																																																																																																																														
Gln Asp Ile His Gly Tyr																																																																																																																														
1 5																																																																																																																														

SEQ ID NO:8
Gln Asp Ile Gly Arg Tyr
1 5

5

SEQ ID NO:9
Gln Asp Ile Arg Gly Tyr
1 5

10

SEQ ID NO:10
Gln Asp Ile Ala Arg Tyr
1 5

15

SEQ ID NO:11
Tyr Thr Ser
1

20

SEQ ID NO:12
Gln Gln Gly Asn Thr Leu Pro Trp Thr
1 5

25

SEQ ID NO:13
Gly Phe Ala Phe Ser Ile Tyr Asp
1 5

30

SEQ ID NO:14
Ile Ser Ser Gly Gly Gly Thr Thr
1 5

35

SEQ ID NO:15
Ala Phe His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr
1 5 10 15

40

SEQ ID NO:16
Ala Phe His Ser Gly Tyr Gly Thr His Trp Gly Val Leu Phe Ala Tyr
1 5 10 15

45

SEQ ID NO:17
Ala Phe His Ser Gly Tyr Gly Tyr Asn Trp Gly Val Leu Phe Ala Tyr
1 5 10 15

50

SEQ ID NO:18
Ala Phe His Ser Gly Tyr Gly Thr Thr Trp Gly Val Leu Phe Ala Tyr
1 5 10 15

55

SEQ ID NO:19
Ala Phe His Ser Gly Tyr Gly Ser Thr Tyr Gly Val Leu Phe Ala Tyr
1 5 10 15

60

SEQ ID NO:20

Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser Ala Ser Leu Gly
 1 5 10 15
 Asp Arg Val Thr Ile Ser Cys Arg Ala Ser Gln Asp Ile His Gly Tyr
 5 20 25 30
 Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Lys Leu Leu Ile
 35 40 45
 Tyr Tyr Thr Ser Ile Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 10 Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn Leu Glu Gln
 65 70 75 80
 Glu Asp Phe Ala Thr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
 85 90 95
 Thr Phe Gly Gly Thr Lys Leu Glu Ile Lys
 15 100 105

SEQ ID NO:21

Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Lys Pro Gly Gly
 20 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr
 20 25 30
 Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
 35 40 45
 25 Ala Tyr Ile Ser Ser Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
 30 85 90 95
 Ala Arg His Ser Gly Tyr Gly Thr His Trp Gly Val Leu Phe Ala Tyr
 100 105 110
 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
 115 120
 35

SEQ ID NO:22

Gly Gly Ser Leu Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro
 1 5 10 15
 40 Leu Glu Thr Phe Thr Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu
 20 25 30
 Glu Gln Cys Gly Tyr Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala
 35 40 45
 Ala Arg Leu Ser Trp Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu
 45 50 55 60
 Ala Ser Pro Gly Ser Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln
 65 70 75 80
 Pro Glu Gln Ala Arg Leu Ala Leu Thr Leu Ala Ala Glu Ser Glu
 85 90 95
 50 Arg Phe Val Arg Gln Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Asn
 100 105 110
 Gly Pro Ala Asp Ser Gly Asp Ala Leu Leu Glu Arg Asn Tyr Pro Thr
 115 120 125
 55 Gly Ala Glu Phe Leu Gly Asp Gly Gly Asp Val Ser Phe Ser Thr Arg
 130 135 140
 Gly Thr Gln Asn Trp Thr Val Glu Arg Leu Leu Gln Ala His Arg Gln
 145 150 155 160
 Leu Glu Glu Arg Gly Tyr Val Phe Val Gly Tyr His Gly Thr Phe Leu
 165 170 175
 60 Glu Ala Ala Gln Ser Ile Val Phe Gly Gly Val Arg Ala Arg Ser Gln
 180 185 190

Asp Leu Asp Ala Ile Trp Arg Gly Phe Tyr Ile Ala Gly Asp Pro Ala
 195 200 205
 Leu Ala Tyr Gly Tyr Ala Gln Asp Gln Glu Pro Asp Ala Arg Gly Arg
 210 215 220
 5 Ile Arg Asn Gly Ala Leu Leu Arg Val Tyr Val Pro Arg Ser Ser Leu
 225 230 235 240
 Pro Gly Phe Tyr Arg Thr Ser Leu Thr Leu Ala Ala Pro Glu Ala Ala
 245 250 255
 Gly Glu Val Glu Arg Leu Ile Gly His Pro Leu Pro Leu Arg Leu Asp
 10 260 265 270
 Ala Ile Thr Gly Pro Glu Glu Gly Arg Leu Glu Thr Ile Leu
 275 280 285
 Gly Trp Pro Leu Ala Glu Arg Thr Val Val Ile Pro Ser Ala Ile Pro
 290 295 300
 15 Thr Asp Pro Arg Asn Val Gly Gly Asp Leu Asp Pro Ser Ser Ile Pro
 305 310 315 320
 Asp Lys Glu Gln Ala Ile Ser Ala Leu Pro Asp Tyr Ala Ser Gln Pro
 325 330 335
 Gly Lys Pro Pro Arg Glu Asp Leu Lys
 20 340 345

SEQ ID NO:23
 Gly Gly Ser Leu Ala Ala Leu Thr Ala His Gln Ala Cys His Leu Pro
 25 1 5 10 15
 Leu Glu Thr Phe Thr Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu
 20 25 30
 Glu Gln Cys Gly Tyr Pro Val Gln Arg Leu Val Ala Leu Tyr Leu Ala
 35 40 45
 30 Ala Arg Leu Ser Trp Asn Gln Val Asp Gln Val Ile Arg Asn Ala Leu
 50 55 60
 Ala Ser Pro Gly Ser Gly Gly Asp Leu Gly Glu Ala Ile Arg Glu Gln
 65 70 75 80
 Pro Glu Gln Ala Arg Leu Ala Leu Thr Leu Ala Ala Ala Glu Ser Glu
 35 85 90 95
 Arg Phe Val Arg Gln Gly Thr Gly Asn Asp Glu Ala Gly Ala Ala Asn
 100 105 110
 Gly Pro Ala Asp Ser Gly Asp Ala Leu Leu Glu Arg Asn Tyr Pro Thr
 115 120 125
 40 Gly Ala Glu Phe Leu Gly Asp Gly Gly Asp Val Ser Phe Ser Thr Arg
 130 135 140
 Gly Thr Gln Asn Trp Thr Val Glu Arg Leu Leu Gln Ala His Arg Gln
 145 150 155 160
 Leu Glu Glu Arg Gly Tyr Val Phe Val Gly Tyr His Gly Thr Phe Leu
 45 165 170 175
 Glu Ala Ala Gln Ser Ile Val Phe Gly Gly Val Arg Ala Arg Ser Gln
 180 185 190
 Asp Leu Asp Ala Ile Trp Arg Gly Phe Tyr Ile Ala Gly Asp Pro Ala
 195 200 205
 50 Leu Ala Tyr Gly Tyr Ala Gln Asp Gln Glu Pro Asp Ala Ala Gly Arg
 210 215 220
 Ile Arg Asn Gly Ala Leu Leu Arg Val Tyr Val Pro Arg Ser Ser Leu
 225 230 235 240
 Pro Gly Phe Tyr Arg Thr Ser Leu Thr Leu Ala Ala Pro Glu Ala Ala
 55 245 250 255
 Gly Glu Val Glu Arg Leu Ile Gly His Pro Leu Pro Leu Arg Leu Asp
 260 265 270
 Ala Ile Thr Gly Pro Glu Glu Glu Gly Gly Arg Leu Glu Thr Ile Leu
 275 280 285
 60 Gly Trp Pro Leu Ala Glu Arg Thr Val Val Ile Pro Ser Ala Ile Pro
 290 295 300

Thr	Asp	Pro	Arg	Asn	Val	Gly	Gly	Asp	Leu	Asp	Pro	Ser	Ser	Ile	Pro
305					310				315						320
Asp	Lys	Glu	Gln	Ala	Ile	Ser	Ala	Leu	Pro	Asp	Tyr	Ala	Ser	Gln	Pro
					325			330							335
5	Gly	Lys	Pro	Pro	Arg	Glu	Asp	Leu	Lys						
					340			345							

SEQ ID NO:24

10	Ala	Glu	Glu	Ala	Phe	Asp	Leu	Trp	Asn	Glu	Cys	Ala	Lys	Ala	Cys	Val
	1				5				10						15	
	Leu	Asp	Leu	Lys	Asp	Gly	Val	Arg	Ser	Ser	Arg	Met	Ser	Val	Asp	Pro
					20			25							30	
15	Ala	Ile	Ala	Asp	Thr	Asn	Gly	Gln	Gly	Val	Leu	His	Tyr	Ser	Met	Val
					35			40				45				
	Leu	Glu	Gly	Gly	Asn	Asp	Ala	Leu	Lys	Leu	Ala	Ile	Asp	Asn	Ala	Leu
		50				55					60					
	Ser	Ile	Thr	Ser	Asp	Gly	Leu	Thr	Ile	Arg	Leu	Glu	Gly	Val	Glu	
		65				70			75			80				
20	Pro	Asn	Lys	Pro	Val	Arg	Tyr	Ser	Tyr	Thr	Arg	Gln	Ala	Arg	Gly	Ser
					85			90				95				
	Trp	Ser	Leu	Asn	Trp	Leu	Val	Pro	Ile	Gly	His	Glu	Lys	Pro	Ser	Asn
					100			105				110				
	Ile	Lys	Val	Phe	Ile	His	Glu	Leu	Asn	Ala	Gly	Asn	Gln	Leu	Ser	His
25					115			120				125				
	Met	Ser	Pro	Ile	Tyr	Thr	Ile	Glu	Met	Gly	Asp	Glu	Leu	Leu	Ala	Lys
					130			135				140				
	Leu	Ala	Arg	Asp	Ala	Thr	Phe	Phe	Val	Arg	Ala	His	Glu	Ser	Asn	Glu
		145				150				155			160			
30	Met	Gln	Pro	Thr	Leu	Ala	Ile	Ser	His	Ala	Gly	Val	Ser	Val	Val	Met
					165			170				175				
	Ala	Gln	Thr	Gln	Pro	Arg	Arg	Glu	Lys	Arg	Trp	Ser	Glu	Trp	Ala	Ser
					180			185				190				
35	Gly	Lys	Val	Leu	Cys	Leu	Leu	Asp	Pro	Leu	Asp	Gly	Val	Tyr	Asn	Tyr
					195			200				205				
	Leu	Ala	Gln	Gln	Arg	Cys	Asn	Leu	Asp	Asp	Thr	Trp	Glu	Gly	Ile	
		210				215					220					
	Tyr	Arg	Val	Leu	Ala	Gly	Asn	Pro	Ala	Lys	His	Asp	Leu	Asp	Ile	Lys
		225				230				235			240			
40	Pro	Thr	Val	Ile	Ser	His	Arg	Leu	His	Phe	Pro	Glu	Gly	Ser	Leu	
					245			250				255				
	Ala	Ala	Leu	Thr	Ala	His	Gln	Ala	Cys	His	Leu	Pro	Glu	Thr	Phe	
					260			265				270				
45	Thr	Arg	His	Arg	Gln	Pro	Arg	Gly	Trp	Glu	Gln	Leu	Glu	Gln	Cys	Gly
					275			280				285				
	Tyr	Pro	Val	Gln	Arg	Leu	Val	Ala	Leu	Tyr	Leu	Ala	Arg	Leu	Ser	
		290				295					300					
	Trp	Asn	Gln	Val	Asp	Gln	Val	Ile	Arg	Asn	Ala	Leu	Ala	Ser	Pro	Gly
		305				310				315					320	
50	Ser	Gly	Gly	Asp	Leu	Gly	Glu	Ala	Ile	Arg	Glu	Gln	Pro	Glu	Gln	Ala
					325			330				335				
	Arg	Leu	Ala	Leu	Thr	Leu	Ala	Ala	Glu	Ser	Glu	Arg	Phe	Val	Arg	
					340			345				350				
55	Gln	Gly	Thr	Gly	Asn	Asp	Glu	Ala	Gly	Ala	Ala	Asn	Ala	Asp	Val	Val
					355			360				365				
	Ser	Leu	Thr	Cys	Pro	Val	Ala	Ala	Gly	Glu	Cys	Ala	Gly	Pro	Ala	Asp
		370				375					380					
	Ser	Gly	Asp	Ala	Leu	Leu	Glu	Arg	Asn	Tyr	Pro	Thr	Gly	Ala	Glu	Phe
		385				390				395			400			
60	Leu	Gly	Asp	Gly	Gly	Asp	Val	Ser	Phe	Ser	Thr	Arg	Gly	Thr	Gln	Asn
					405			410				415				

Trp Thr Val Glu Arg Leu Leu Gln Ala His Arg Gln Leu Glu Glu Arg
 420 425 430
 Gly Tyr Val Phe Val Gly Tyr His Gly Thr Phe Leu Glu Ala Ala Gln
 435 440 445
 5 Ser Ile Val Phe Gly Gly Val Arg Ala Arg Ser Gln Asp Leu Asp Ala
 450 455 460
 Ile Trp Arg Gly Phe Tyr Ile Ala Gly Asp Pro Ala Leu Ala Tyr Gly
 465 470 475 480
 Tyr Ala Gln Asp Gln Glu Pro Asp Ala Arg Gly Arg Ile Arg Asn Gly
 10 485 490 495
 Ala Leu Leu Arg Val Tyr Val Pro Arg Ser Ser Leu Pro Gly Phe Tyr
 500 505 510
 Arg Thr Ser Leu Thr Leu Ala Ala Pro Glu Ala Ala Gly Glu Val Glu
 515 520 525
 15 Arg Leu Ile Gly His Pro Leu Pro Leu Arg Leu Asp Ala Ile Thr Gly
 530 535 540
 Pro Glu Glu Glu Gly Gly Arg Leu Glu Thr Ile Leu Gly Trp Pro Leu
 545 550 555 560
 Ala Glu Arg Thr Val Val Ile Pro Ser Ala Ile Pro Thr Asp Pro Arg
 20 565 570 575
 Asn Val Gly Gly Asp Leu Asp Pro Ser Ser Ile Pro Asp Lys Glu Gln
 580 585 590
 Ala Ile Ser Ala Leu Pro Asp Tyr Ala Ser Gln Pro Gly Lys Pro Pro
 595 600 605
 25 Arg Glu Asp Leu Lys
 610

SEQ ID NO:25
 gaacccgacg cagccggccg tatccgcaac 30
 30
 SEQ ID NO:26
 gttgcggata cggccggctg cgtcgggttc 30
 .
 SEQ ID NO:27
 35 gctgtcgtgg aaccaggtcg accagg 26
 .
 SEQ ID NO:28
 ctttgttagc agccgaattc atattcgat 29
 .
 40 SEQ ID NO:29
 Gly Thr His Trp
 1